E/CONF.39/D/137
SUMMARY
26 Oct.1962
ORIGINAL : ENGLISH

UNITED NATIONS CONFERENCE
ON THE APPLICATION OF SCIENCE AND TECHNOLOGY
FOR THE BENEFIT OF THE LESS DEVELOPED AREAS

SUMMARY

Agenda Item: D.13

Australia

NEW VERTICAL KILN PROCESS FOR CEMENT MANUFACTURE

By S. GOTTLIEB,
Gippsland Cement Ltd.,
Melbourne, Australia

Papers have been contributed to the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas as working papers for that Conference. They are published as presented by the contributors, and the contents and the views expressed are those of the contributors. (See notes overleaf.)

NOTES

1. Papers selected for inclusion in General Sessions will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

2. Papers selected for inclusion in Specialized Sessions will be available at the Conference in only one of the above official languages.

3. Summaries of all papers, as submitted by contributors, will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

4. Papers and summaries will not be available for general distribution in advance of the Conference. They will be published in advance in limited quantities only for the use of delegations of participating governments and of other authorized participants. Post-Conference publication and general distribution of the Conference Proceedings will follow United Nations practices as laid down by the United Nations Publications Board.

NEW VERTICAL KILN PROCESS FOR CEMENT MANUFACTURE

by S. Gottlieb, Gippsland Cement Ltd., Melbourne, Australia.

Intensive research during the past years has brought the new vertical kiln into a very promising stage of development. However, even more interesting appear to be its chances for further progress. Although research workers do not like to think in terms of "practical" results (as the bridge between theory and practice is not easily found), some of these results are already worth mentioning.

First of all, the new kiln makes it economically possible to establish cement manufacture on a small scale. Conventional cement manufacture, involving several varieties of the rotary kiln, costs to-day between £25 to £30 per annual ton to establish. Therefore, a plant to produce 100,000 tons per annum would cost between £A2½ million and £A3 million to build. As under Australian conditions, capital has to earn about 20% to cover tax, depreciation and interest or dividend, 100,000 tons per annum production would carry a financial overhead of about £5/ton before spending on actual production and operating overhead. The main reason for the high capital expenditure is that the kiln and its auxiliaries involve high cost firing and heat exchange equipment.

A modern vertical kiln plant can be established at much lower cost as it is its own heat exchanger, operating mainly on convective heat transfer.

Since the low cost plant makes possible the establishment of cement industry on a relatively small scale the industry may be effectively decentralized as to capital cost, output and plant area. This is of great importance for a heavy, bulky commodity like cement, the handling and transport of which is costly and out of proportion to its value.

The second important point is the possibility of automating the sintering process fully, independent of any visual control of fire.

Thirdly, the new vertical kiln can operate on low grade fuels which are available in abundance all over the world, whereas bituminous high grade coals are scarce. Thus plants can be provided in areas of dense population or industrial promotion centres to produce the basic materials for modern building, as well as employment, where they could not have been established before. Gippsland in Australia, is an example, but there are others too. For instance, in India densely populated, often famine stricken, districts need new industries for employment to reduce the incidence of catastrophies in the future. Naturally, cement is also needed that the areas may progress and the standard of living raised.

Fourthly, the quality of the cement clinker produced in the vertical kiln is very high and fully uniform due to the nature of sintering and cooling, and has the additional advantage of a very much reduced alkali content. This makes vertical kiln clinker particularly suitable for the manufacture of a great variety of special cements; such as low alkali, low heat, sulphate resistant cements.

S - 1373 E - Nov.1962 - 1,600